DOCUMENT RESUME

ED 298 452 CS 009 303

AUTHOR Henk, William A.; Stahl, Norman A.
TITLE Comparison-Contrast Text Structures and the College Developmental Reader. College Reading and Learning Assistance Technical Report 88-02.
PUB DATE 20 Jul 88
NOTE 20p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS College Students; Higher Education; *Reading Comprehension; Reading Research; *Remedial Reading; *Text Structure
IDENTIFIERS Text Factors

ABSTRACT

A study examined the effect of divided and alternating comparison/contrast text structures on the reading comprehension of the college developmental reader. In the divided pattern, all of the information about an object is provided and then all of the information about the other object is provided, while in the alternating pattern comparisons between the two objects are made point by point. Subjects, 24 students ranging in age from 19 to 26 years and classified as less able readers, were given two short and two long reading selections concerning unfamiliar scientific topics. Each subject received two alternating and two divided comparison/contrast structures. Subjects responded to multiple choice questions for each passage. Results indicated that there was no significant difference in the reading comprehension of the different types of text structure. More research is needed, but until that time college reading instructors should consider developing materials that train students to master comparison/contrast patterns across several reading and writing contexts. (Sixteen references, one table of data, one figure, and a master list of College Reading and Learning Assistance Technical Reports are appended.) (RS)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Norman A. Stahl
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED298452

College Reading and Learning Assistance

Technical Report 88-02

Comparison-Contrast Text Structures and the College Developmental Reader

William A. Henk

The Pennsylvania State University at Harrisburg
The Capital College (7)
Middletown, PA 17057

Norman A. Stahl

Northern Illinois University
Graham Hall 119
Reading Clinic
DeKalb, IL 60115

July 20, 1988

Northern Illinois University
and
Georgia State University

CS009303

BEST COPY AVAILABLE

Comparison-Contrast Text Structures and the College Developmental Reader

Although much reading research centers on expository text structure in general, few studies have examined how specific patterns of informational text influence comprehension. One notable omission is a lack of research into the effects of two distinct types of comparison-contrast text patterns, divided and alternating. The purpose of this article is 1) to outline differences between divided and alternating patterns, 2) to report the effect these patterns exert on the performance of college developmental readers, and 3) to present related instructional implications.

Why Study Divided and Alternating Patterns?

Until very recently, most comparison-contrast research has addressed how this type of text fares against other organizational plans such as cause-effect, problem-solution, and listing (Englert and Hiebert, 1984; Meyer, Brandt, and Bluth, 1978; Richgels, McGee, Lomax, and Sheard, 1987). Overall this research indicates that comparison-contrast discourse promotes greater reading comprehension and recall. It seems that comparison-contrast passages tend to be better structured than other text patterns and that this stronger organization contributes to superior achievement.

However, none of these studies distinguished between divided and alternating comparison-contrast patterns. This trend may be important because these patterns differ markedly from one another in terms of structure and other related characteristics. In the divided pattern, all of the information about a first object or action (A) is presented and then all of the information about a second related object or action (B) is conveyed. This pattern of organization is often referred to as an A - B arrangement. A second mode of comparison/contrast is known as the alternating pattern because it takes up characteristics of the two topics one at a time and compares or contrasts them point by point throughout the passage (McCrimmon, 1972). The alternating arrangement takes the form A - B, A - B, and so on, for as many pairings as the subject requires. Examples of a divided and an alternating pattern appear in Figure 1.

Insert Figure 1 about here

Because divided and alternating patterns vary along these structural lines, it is difficult to predict how reading comprehension might be affected. The primary difference, of course, will revolve around the spatial, sequential, and temporal arrangement of concepts. Beyond

this major distinction, the patterns will probably also differ in: 1) the use of transitional markers such as signal words (e.g. conversely, similarly, likewise), 2) the number of pronoun-referent pairs, and 3) the proportion of complex sentences (Henk, in press). For instance, consider that alternating patterns not only require the assembling of two schemas simultaneously, but also tend to make more frequent use of signaling devices, pronoun-referent pairs, and dependent/independent clause combinations. Some of these features may promote comprehension while others may hinder it. Without direct testing, we have no way of knowing how these factors will interact to influence reading comprehension processes.

Another reason for studying the two patterns is that comparison/contrast text structures occur regularly in college textbooks and other relevant reading materials. The patterns are used to convey information about objects, events, and actions that share fundamental likenesses and differences. With few exceptions, developmental college readers will encounter comparison-contrast patterns as part of nearly every course. Their ability to comprehend and remember information presented in these patterns may play a key role in their overall academic success. The implication for developmental educators is that the instructional focus for comparison-contrast lessons can only be sharpened as more becomes known about the two patterns.

Thus far, only Henk (in press) has studied how divided and alternating comparison-contrast patterns affect reading comprehension. Using skilled readers, he found no significant differences between the two types of comparison-contrast patterns. It was concluded that as long as comparison-contrast texts were well-structured, proficient readers could learn the information equally well regardless of which pattern was used.

A natural extension of this research would be to determine how divided and alternating patterns might influence the reading comprehension of less capable readers. With this in mind, we set about examining the impact of the two patterns on the reading comprehension of college developmental readers.

The Experiment

Twenty-four students, ranging in age from 19 to 26 years, participated in the experiment. They were enrolled in a developmental studies program at a major southeastern university. All of the students were placed in the remedial reading course because they had failed a junior level reading proficiency test required for graduation. Further entrance testing confirmed that these students could be classified as less able readers.

Eight reading passages were developed from material appearing in Scientific American, the World Book Encyclopedia, and Consumer Reports magazine. Each

passage measured at the eleventh grade readability level (Fry, 1977). The passages dealt with four scientific subject areas: 1) the eye versus a camera, 2) the brain versus a computer, 3) dot-matrix versus daisy wheel computer printers, and 4) phonograph versus compact disc technology. For each of these four subject areas, two passages were devised. One version was written using a divided comparison-contrast pattern while the other used the alternating type. Both versions contained the same amount and quality of information.

The eye/camera and brain/computer passages averaged 220 words in length while the dot-matrix/daisy wheel and phonograph/disc passages averaged 700 words. Each short passage contained six critical points of comparison-contrast while the longer passages contained 14 such points. The passages compared and contrasted the objects in terms of their functions and operations.

Students received packets of materials that included thorough instructions, four reading passages, and corresponding related knowledge and multiple-choice tests. Within the packets, passage, sequence, and text pattern were counterbalanced so that (1) each student received two short passages and two long passages, (2) each student received two divided patterns and two alternating patterns, and (3) across students, all passages occurred in each position an

equal number of times. This plan allowed each of the eight passages to be read by 12 students.

Following silent reading, students completed a 12-item content-specific vocabulary test. These vocabulary tests measured related knowledge of passage content. Answers to the items represented specific vocabulary associated with the subject area. These related knowledge tests also increased the length of time readers would need to remember the information before responding to sets of multiple-choice questions. Scores on the related knowledge tests were very low for all four of the subject areas. This trend indicated that passage content was unfamiliar to most of the students.

The multiple-choice questions measured students' comprehension of the major concepts presented in the texts. Six questions were developed for each short passage set and 14 questions were developed for the longer passage sets. The questions corresponded to the key points of comparison-contrast contained in the passages. They were ordered in the same sequence as the points had been presented in the passages.

Altogether, students responded to 40 questions, 28 based on the longer passages and 12 based on the shorter ones. For both the divided and alternating treatments, a 20-item score could be attained for each student by adding the scores for the long and short passages associated with that pattern. Because a repeated measures design was used,

each student could be examined under all possible treatments. The main variable was the type of comparison-contrast passage pattern, either divided or alternating.

What Happened?

Table 1 presents the means and standard deviations produced by the eight passages. It shows that neither the type of comparison-contrast pattern nor the topic of the passage made much difference in comprehension scores. The means of the shorter passages were very similar to one another and differences among the means of the longer passages did not consistently favor either pattern. The greater mean differences in the longer passages were not large considering that they were based on a maximum score of 14.

Insert Table 1 about here

Still, to test directly for significant differences, we used a repeated measures analysis of variance (ANOVA) procedure. The analysis indicated that the divided and alternating passages did not differ from one another in terms of developmental readers' comprehension performance, $F(1, 23) < 1$, $p > .77$. The combined mean for the divided passages measured 11.2 (SD=2.93), while the alternating

passages generated a combined mean of 11.3 (SD=2.96). Interestingly, this comprehension performance was quite low overall. College developmental readers averaged only 56% recall of information. These scores indicate that neither pattern allowed readers to achieve consistently beyond the frustration range. Apparently, students lacked a general facility with the two patterns and the unfamiliar concepts they attempted to convey.

What It Means

The findings suggest that for college developmental readers the type of comparison-contrast pattern used makes little difference. As long as the information is equally well-structured, performance should be about the same. In this sense, these results are consistent with Henk's (in press) study with more capable readers.

An important exception, however, is that the college developmental readers performed much less well overall. Most of these students could not read 11th grade comparison-contrast passages with satisfactory comprehension. By contrast, proficient readers tend to achieve around 70% comprehension, placing them at the instructional level for the same passages and questions. One noteworthy implication for college developmental educators is that their students may require explicit instruction with both divided and alternating patterns to

facilitate their learning of unfamiliar comparison-contrast information.

Another implication of the study is that a distinction must be made between experimental findings and classroom applications. While no significant group differences were observed, some of the students did perform better with one or the other pattern. This outcome indicates the need to make individual determinations of students' facility with the two patterns. These determinations, in turn, will provide direction for future reading instruction with comparison-contrast text.

Many authors of college reading texts do regularly provide developmental readers with instruction centering on discourse patterns. In several college reading and study-skills texts, authors use a range of instructional formats to train college readers to recognize and respond effectively to comparison-contrast patterns. In one approach, simple descriptions of the pattern are provided along with short examples, and listings of relevant signal words (Pauk, 1984; Smith, 1985). In a more intensified approach, students complete activities with short text samples where they are to identify the type of discourse, note points of comparison and contrast, diagram the structure of the passage, detect signal words and other pattern-related cues, and determine the main idea (Joffe, 1984; Langan, 1988, Mullen, 1987; Wassman and Page, 1985).

Only two such texts (McWhorter, 1986; Wiener and Bazerman) directly attempt to teach students how to differentiate between the divided and alternating comparison-contrast patterns. The most sophisticated approach uses all of the preceding activities and, in addition, leads students to note comparisons and contrasts across complete texts rather than in short segments only (Epstein and Nieratka, 1985).

It should also be noted that a developmental college student's training with the comparison/contrast pattern does not usually end with their "graduation" to mainstream classes. Rather, general writing classes make use of a number of rhetorical readers to teach forms, patterns, and styles of discourse either explicitly or implicitly. The instructional method generally calls for students to read and discuss several comparison-contrast passages. The discussion is followed by students composing texts loosely modeled after the passages under study.

Limitations and Future Directions

A number of points must be considered before the results of this study can be generalized to instructional settings at the college level. First, only unfamiliar scientific texts were used. Perhaps comparison-contrast texts from other content areas would yield different results. It is also possible that the use of multiple-choice questions may have hidden true differences in students' ability to cope with the two text patterns.

These questions involved recognizing the correct answer rather than the more demanding task of supplying it. Multiple-choice formats are also more susceptible to guessing, and so a free recall task might have shed additional light on the issue.

Finally, the findings should not be taken to mean that textbook authors and publishers can use divided and alternating patterns indiscriminately. After all, it is not hard to imagine how in a particular instance one pattern would be more or less effective than the other. Much more research is needed before any definitive conclusions can be drawn. Until that time, college reading instructors should consider developing materials that train students to master both comparison-contrast patterns across several reading and writing contexts. The critical question confronting developmental educators now is how to nurture this proficiency, particularly when many college reading and study skills texts may fall short of the mark.

References

Englert, Carol Sue, and Hiebert, Elfrieda H. "Children's Developing Awareness of Text Structure in Expository Materials." Journal of Educational Psychology, Vol. 76 (February 1984), 65-74.

Epstein, Ira D., and Ernest B. Nieratka, The Proficient Reader. Boston: Houghton-Mifflin, 1985.

Fry, Edward. B. "Fry's Readability Graph: Clarification, Validity, and Extension to Level 17." Journal of Reading, Vol. 21 (December 1977), 242-252.

Henk, William A. "Effects of Top-Level Comparison-Contrast Discourse Structures on Reading Comprehension Performance." Reading Research and Instruction, in press.

Joffe, Irwin L. Opportunity for Skillful Reading. Belmont, CA: Wadsworth, 1984.

Langan, John. Ten Steps to Improving Reading Skills. Cherry Hill, NJ: Townsend Press, 1988.

McCrimmon, James M. Writing with a Purpose (5th Ed.). Boston, MA: Houghton-Mifflin, 1972.

McWhorter, Kathleen T. Guide to College Reading. Boston: Little, Brown and Company, 1986.

Meyer, Bonnie J. F., David M. Brandt, and George L. Bluth, "Use of Top-Level Structure in Text: Key for Reading Comprehension of Ninth Graders." Reading Research Quarterly, Vol. 16, (Fall 1980), 72-103.

Mullen, JoAnne L. College Reading and Learning Skills. Englewood Cliffs, NJ: Prentice-Hall, 1987.

Pauk, Walter. How to Study in College. Boston, MA: Houghton-Mifflin, 1984.

Richgels, Donald J., Lea M. McGee, Richard G. Lomax, and Catherine Sheard. "Awareness of Four Text Structures: Effects on Recall of Expository Text." Reading Research Quarterly, Vol. 22 (Spring 1987), 177-196.

Roe, Betty D., and Elinor P. Ross. Developing Power in Reading. Dubuque, IA: Kendall Hunt, 1976.

Smith, Brenda D. Bridging the Gap: College Reading. Glenview, IL: Scott, Foresman, 1985.

Wassman;, Rose, and Anne Page. A Reader's Handbook. Glenview, IL: Scott, Foresman, 1985.

Wiener, Harvey S., and Charles Bazerman. Reading Skills Handbook. Boston, MA: Houghton-Mifflin, 1985.

Table 1. Means and Standard Deviations for Text Pattern by Passage Combinations.

		DIVIDED		ALTERNATING	
	PASSAGE	M	SD	M	SD
Short*	Eye/Camera	3.1	1.08	3.3	.98
	Brain/Computer	3.2	1.47	3.0	1.73
Long**	Phonograph/Disc	7.5	3.15	8.1	2.27
	Printers	8.6	2.19	8.2	2.34

*Maximum Score = 6.

**Maximum Score = 14.

DIVIDED PATTERN

Nowadays there are two kinds of baseball bats, wooden and aluminum. Wooden baseball bats were the first kind to be used. They make a deep cracking noise when striking the ball. The problem with wooden bats is that they break easily. It has been difficult for amateur team sponsors to afford providing them because they need to be replaced so often. Where money is not a key concern, like the major leagues, wooden bats are still used exclusively. Aluminum bats have largely replaced wooden bats from little league all the way up through the minors. These newer models make a pinging sound when contact is made. They do not break because of striking the ball. They cost a little bit more than wooden bats at first, but because they last so much longer, they end up being far less expensive for sponsors.

ALTERNATING PATTERN

Nowadays there are two kinds of baseball bats, wooden and aluminum. While wooden baseball bats were the first kind to be used, aluminum bats have largely replaced them from little league all the way up through the minors. Wooden bats make a deep cracking noise when striking the ball. By contrast, the newer aluminum models make a pinging sound when contact is made with the ball. The problem with wooden bats is that they break easily. On the other hand, aluminum bats do not break because of striking the ball. It has been difficult for amateur team sponsors to afford providing wooden bats because they need to be replaced so often. Although aluminum bats cost a little bit more at first, they last so much longer that they end up being far less expensive for sponsors. However, where money is not a key concern, like the major leagues, wooden bats are still used exclusively.

K E Y:

TOPIC A Wooden Bats

TOPIC B Aluminum Bats

Master List
College Reading and Learning Assistance Technical Reports

Technical Report No.	
84-01	Brozo, W.B., Schmelzer, R.V., & Spires, N.A. A Study of Test Wiseness Clues in College/University Teacher-Made Tests with Implications for Academic Assistance Centers. (ERIC No. ED 240-928)
84-02	Stahl, N.A., Brozo, W.G., & Henk, W.A. Evaluative Criteria for College Reading-Study Research. (ERIC No. ED 240-933)
84-03	Schmelzer, R.V., Brozo, W.G., & Stahl, N.A. Using a Learning Model to Integrate Study Skills into a Peer-Tutoring Program. (ERIC No. ED 256-244)
84-04	Brozo, W.G. & Stahl, N.A. Focusing on standards: A Checklist for Rating Competencies of College Reading Specialists. (ERIC No. ED 248-762)
84-05	Stahl, N.A., Brozo, W.G., & Gordon, B. The Professional Preparation of College Reading and Study Skills Specialists. (ERIC No. ED 248-761)
84-06	Stahl, N.A. & Brozo, W.G. Vocabulary Instruction in Georgia's Post-secondary Reading Programs. (ERIC No. ED 248-759)
84-07	King, J.R., Stahl, N.A., & Brozo, W.G. Integrating Study Skills and Orientation Courses. (ERIC No. ED 248-760)
84-08	Brozo, W.G. & Schmelzer, R.V. Faculty Perceptions of Student Behaviors: A Comparison of Two Universities. (Not Submitted to ERIC--See the Journal of College Student Personnel, Vol. 26, #3)
84-09	Henk, W.A., Stahl, N.A., & King, J.R. The Readability of State Drivers' Manual. (Not submitted to ERIC--please refer to Transportation Quarterly, 38(4), 507-520).
84-10	Stahl, N.A., Henk, W.A., & King, J.R. Are Drivers' Manuals Right for Reluctant Readers? (ERIC No. ED 245-208)
84-11	Stahl, N.A. & Henk, W.A. Teaching Students to Use Textbook-Study Systems (Not submitted to ERIC--please refer to Reading Horizons, 25 (3), 153-161).
85-01	Stahl, N.A., Hynd, C.R., & Henk, W.A. Avenues for Chronicling and Researching the History of College Reading and Study Skills Instruction. (ERIC No. ED 256-245)

85-02 Smith, B.D. & Elifson, J.M. Do Pictures Make a Difference in College Textbooks? (ERIC No. ED 256-246)

85-03 Brozo, W.G., Stahl, N.A., & Gordon, B. Training Effects of Summarizing, Item Writing, and Knowledge of Sources on Reading Test Performance. (ERIC No. ED 256-247)

85-04 Brozo, W.G. Teaching Students to Recognize and Manipulate Structures of Cohesion. (ERIC No. ED 256-248)

85-05 Henk, W.A. & Stahl, N.A. A Meta-Analysis of the Effect of Notetaking on Learning from Lecture. (ERIC No. ED 258-533)

85-06 King, J.R. & Stahl, N.A. Training and Evaluating Notetaking. (ERIC No. ED 263-537)

85-07 Chase, N.D. Reader Response Techniques for Teaching Secondary and Post-Secondary Reading. (ERIC No. ED 263-535)

85-08 Hynd, C.R. & Alvermann, D.E. The Role of Refutation Text in Overcoming Difficulty with Science Concepts. (ERIC No. ED 264-525)

85-09 Best, P.A. & Brozo, W.G. Current Research on Studying: A Qualitative Analysis. (ERIC No. ED 263-534)

85-10 Stahl, N.A., Henk, W.A., Brozo, W.G., & Sickele, M. Developing Independent Learners: Strategies and Tactics for Mastery of Text. (ERIC No. ED 263-536)

85-11 King, J.R., Stahl, N.A., & Brozo, W.G. Quality Assessments of Prospective Teachers: Surveys of Previous and Present Practices. (ERIC No. ED 266-133)

86-01 Hynd, C.R., Chase, N.D., Stahl, N.A., & Smith, B. Reader Response in the College Developmental Classroom. (ERIC No. ED 270-729)

86-02 Stahl, N.A. & Henk, W.A. Tracing the Roots of Textbook Study Systems: An Extended Historical Perspective. (ERIC No. ED 270-723)

86-03 Brozo, W.G. & Tomlinson, C.M. Literature: The Key to Lively Content Courses. (ERIC No. ED 271-720)

86-04 Brozo, W.G. & Johns, J.L. A Content Analysis of Forty Speed-Reading Books. (ERIC No. ED 270-724)

86-05 Hynd, C.R., Stahl, N.A., & Whitehead, E.H. Computers in the College Reading Program: A Basic Primer. (ERIC No. ED 269-753)

86-06 Singer, M. & Etter-Lewis, G. Personality Type and College Reading Comprehension. (ERIC No. ED 278-967)

86-07 Stahl, N.A., Brozo, W.G., & Simpson, M.L. Developing College Vocabulary: A Content Analysis of Instructional Materials. (ERIC No. ED 278-970)

86-08 Brozo, W.G. & Curtis, C.L. Coping Strategies of Four Successful Learning Disabled College Students: A Case Study Approach. (ERIC No. ED 281-149)

86-09 Stahl, P.C., Stahl, N.A., & Henk, W.A. Historical Roots, Rationales and Applications of Peer and Cross-Age Tutoring: A Basic Primer for Practitioners and Researchers. (ERIC No. ED 284-660)

87-01 Brozo, W.G. & Curtis, C.L. Unskilled College Readers' Comprehension of Connected and Disconnected Text. (ERIC No. ED 281-150)

87-02 Nist, S.L. Teaching Students to Annotate and Underline Text Effectively -- Guidelines and Procedures. (ERIC No. ED 281-155)

87-03 Stahl, N.A., Simpson, M.L., & Brozo, W.G. The Materials of College Reading Instruction: A Critical and Historical Perspective From 50 Years of Content Analysis Research. (ERIC Document Reproduction No. pending)

87-04 Simpson, M.L., Stahl, N.A., & Hayes, C. PORPE: A Comprehensive Study Strategy Utilizing Self-Assigned Writing (ERIC Document Reproduction No. 292-097)

87-05 Smith, B.D., Stahl, N.A., & Neel, J.H. The effect of Imagery Instruction on Vocabulary Development (ERIC No. 291-076)

87-06 Simpson, M.L., Hayes, C.G., Stahl, N.A., Connor, R.T. & Weaver, D. An Initial Validation of a Study Strategy System. (Not submitted to ERIC--please refer to the Journal of Reading Behavior, Vol. 20, #2)

88-01 Chase, N.D., Etter-Lewis, G. & Hynd, C.R. Psychological Type as a Guide to Understanding Basic Writers' Response to Literature (ERIC Document Reproduction No. pending)

88-02 Henk, W.A. & Stahl, N.A. Comparison-Contrast Text Structures and the College Developmental Reader (ERIC Document Reproduction No. pending)